

# MAMMALIAN SPECIES

No. 177, pp. 1–3, 3 figs.

## Artibeus aztecus. By Wm. David Webster and J. Knox Jones, Jr.

Published 18 June 1982 by The American Society of Mammalogists

### Artibeus aztecus Andersen, 1906

#### Aztec Fruit-eating Bat

*Artibeus aztecus* Andersen, 1906:422. Type locality Tetela del Volcán, ca. 6,550 ft, south slope Mt. Popocatépetl, Morelos.

**CONTEXT AND CONTENT.** Order Chiroptera, Family Phyllostomidae, Subfamily Stenodermatinae, Tribe Stenodermatini. The genus *Artibeus* contains approximately 13 extant species. Three subspecies of *A. aztecus* currently are recognized (Davis, 1969):

- A. a. aztecus* Andersen, 1906:422, see above.  
*A. a. major* Davis, 1969:15. Type locality 7.5 km E Canaán, ca. 8,000 ft, San José, Costa Rica.  
*A. a. minor* Davis, 1969:15. Type locality San Cristóbal Verapaz, 4,485 ft, Alta Verapaz, Guatemala.

**DIAGNOSIS.** Bats of the genus *Artibeus* differ from other stenodermatines as follows (Hall, 1981; Jones and Carter, 1976): length of rostrum slightly more than half that of braincase; inner upper incisor bifid, slightly larger than outer, but not twice as large; third molars present or absent (if present minute and peg-like); interpterygoid space not extending forward as a deep palatal emargination.

The species of *Artibeus* fall generally into three size groups of which *A. aztecus* is a member of the smallest. Among the taxa in that group, *A. aztecus* is most closely related to *Artibeus toltecus* (Andersen, 1906, 1908; Davis, 1958, 1969), and these two species can be separated from other congeners (Davis, 1969; Hall, 1981) by a combination of small size (length of forearm 48 mm or less, greatest length of skull 24 mm or less), a narrow and deeply incised interfemoral membrane (6.5 mm or less) that has a conspicuous fringe of hairs on its posterior border, and in that the ears lack prominent white edging and the whitish supraorbital stripes are inconspicuous or absent.

*Artibeus aztecus* differs from the smaller and partially sympatric *A. toltecus* primarily in size and altitudinal distribution. According to Davis (1969), the greatest length of skull in *A. aztecus* is more than 21.0 mm, the length of the maxillary toothrow usually is greater than 7.0 mm, the length of the forearm usually is greater than 42.0 mm, and the weight usually exceeds 18 g (see also Jones et al., 1972). The same measurements in *A. toltecus* are usually less than 21.0, 7.0, and 42.0, respectively, and the weight rarely exceeds 16 g. In addition, *A. aztecus* occurs in the "highlands" whereas *A. toltecus* occupies the "mid-altitude woodlands," although both have been taken sympatrically at several localities in México and Central America (Davis, 1969).

**GENERAL CHARACTERS.** The Aztec fruit-eating bat (Fig. 1) is known from three disjunct geographic areas, each representing a separate subspecies: *A. a. aztecus* is a moderately large race with wood brown pelage; *A. a. minor* is small and blackish in color; *A. a. major* is large with intense blackish pelage. Selected average external and cranial measurements (mm, extremes in parentheses) of series of *A. a. aztecus* from the Mexican highlands, *A. a. minor* from the Guatemalan highlands, and *A. a. major* from the Costa Rican highlands are, respectively (Davis, 1969): length of forearm (including carpal), 44.1 (41.2 to 46.5), 42.6 (40.0 to 44.8), 46.3 (44.1 to 48.3); greatest length of skull, 22.1 (21.2 to 23.0), 21.8 (21.0 to 22.5), 23.1 (22.5 to 23.8); zygomatic breadth, 12.9 (12.0 to 13.4), 12.5 (12.0 to 13.4), 13.8 (13.2 to 14.4); postorbital constriction, 5.7 (5.4 to 6.1), 5.6 (5.3 to 5.7), 5.5 (5.3 to 5.7); length of maxillary toothrow, 7.2 (6.9 to 7.6), 7.1 (6.8 to 7.3), 7.8 (7.6 to 7.9); width across molars, 9.2 (8.6 to 9.6), 9.3 (9.0 to 9.6), 10.6 (10.3 to 11.1). The weight (g, extremes in parentheses) of males from the same samples of *A. a. aztecus* and *A. a. minor* are 21.1 (19.0 to 24.5) and 19.7 (15.3 to 22.0). The dental formula is 2/2, 1/1, 2/2, 2/2, total 28. The skull of the Aztec fruit-eating bat is shown in Fig. 2.

**DISTRIBUTION.** The distribution of the three disjunct races of *Artibeus aztecus* is mapped in Fig. 3: *A. a. aztecus* is known from the mountains surrounding the Mexican Plateau (Sinaloa and Nuevo León south to Oaxaca); *A. a. minor* occurs in the Central American highlands from Chiapas to Honduras; and *A. a. major* is known from the mountains of Costa Rica and western Panamá. Specimens examined by Davis (1969) were collected at elevations from 1,885 ft at Comayagua, Honduras, up to 10,000 ft at Villa Mills, Costa Rica. No fossils are known.

**FORM.** The brain of *A. aztecus* has angular pseudotemporal lobes that project ventrally, no sulci anterior to the shallow pseudocentral sulci, a dorsally covered inferior colliculi, a dorsally expanded vermiform body that forms a medial cerebellar crest, and the most shallow cerebral hemispheres within stenodermatine bats (McDaniel, 1976).

Alimentary morphology of *Artibeus* (seven species examined including *aztecus*) is similar to that of *Centurio*, with greatly enlarged cardiac vestibules, a narrow zone of transition between the fundic and pyloric mucosa containing highly convoluted gastric rugae, a symmetrical pyloric sphincter, and long intestines (relative to body length), all of which are correlated to the obligate frugivorous diet (Forman et al., 1979).

**REPRODUCTION.** Pregnant females, each having one embryo, have been collected in March, April, July, and August, and a lactating female was captured in September (Wilson, 1979). Seventeen of 23 females collected in Sinaloa in July were pregnant, each with a single embryo on the left side (Jones, 1964). A juvenile male was captured in June (Davis, 1969).

**ECOLOGY.** According to Davis (1969), *Artibeus aztecus* appears to be associated with cloud forests rather than a particular floral assemblage because individuals have been captured in mist nets set in conifer and evergreen forests, banana and mango groves, and in a relatively dry valley near Comayagua, Honduras. Jones (1964) collected Sinaloan specimens from abandoned mines surrounded by tropical deciduous forest in narrow valleys that



FIGURE 1. Dorsal view of museum study skins of *Artibeus aztecus* (left) and *A. toltecus*. The specimens represent the largest and darkest race of the former (*A. a. major*, TTU 12911, from Costa Rica) and the smallest and palest race of the latter (*A. t. hesperus*, TTU 6134, from Jalisco). Total length of the *A. aztecus* measured 73 mm.



FIGURE 2. Dorsal, ventral, and lateral views of skull and lateral view of lower jaw of *Artibeus aztecus major* (♀, TTU 12911) from 1 mi W Vara Blanca, Costa Rica. Greatest length of skull is 22.8 mm.

approached the border of oak and pine-oak forests. Other reported daytime roosts include ventral surfaces of banana leaves (Baker and Greer, 1962), and small crevices and caves in rock outcroppings and limestone sinks (Davis, 1969). Webb and Baker (1962) give additional details of habitat at two localities in Durango where the Aztec fruit-eating bat has been collected.

Other bats that have been caught at the same locality as *Artibeus aztecus* include *A. toltecus*, *A. hirsutus*, *A. jamaicensis*, *A. lituratus*, and *Anoura geoffroyi* in Sinaloa (Jones, 1964); *A. geoffroyi*, *Sturnira lilium*, *S. ludovici*, *Myotis auriculus*, and *M. velifer* in Jalisco (Watkins et al., 1972); *Artibeus toltecus*, *A. jamaicensis*, and *A. lituratus* in Oaxaca (Alvarez and Ramírez-Pulido, 1972); and *Micronycteris megalotis*, *Hylonycteris underwoodi*, *Anoura cultrata*, *A. geoffroyi*, *Sturnira ludovici*, *S. mordax*, *Vampyrops vittatus*, *Artibeus toltecus*, *Enchisthenes hartii*, *Centurio senex*, *Desmodus rotundus*, *Myotis chiloensis*, *Eptesicus andinus*, and *Tadarida brasiliensis* at three separate localities in Costa Rica (Gardner et al., 1970).

Ectoparasites known from the Aztec fruit-eating bat (Webb and Loomis, 1977) include macronyssid mites (*Macronyssoides kochi*, *Parichoronyssus* sp.), spinturnicid mites (*Periglischhrus iheringi*), trombiculid mites (*Eutrombicula alfreddugesi*, *Perates anophthalmia*, *Perissopalla beltrani*), argasid ticks (*Ornithodoros yumatensis*), and streblid batflies (*Paratrichobius* sp.).

**GENETICS.** The karyotype of *Artibeus aztecus* has a diploid number of 30 (females) or 31 (males) and 56 autosomal arms (Baker, 1979). As in most other members of the genus, all autosomes are biarmed and include four pairs of large subteloacentrics and 10 pairs of large to small metacentrics or submetacentrics. The X-chromosome is subtelocentric and the two Y-chromosomes are acrocentric.

**REMARKS.** *Artibeus aztecus* and *A. toltecus* have been considered in the past as geographic races of *A. cinereus* by some authorities (Dalquest, 1953a, 1953b; Hershkovitz, 1949). The for-

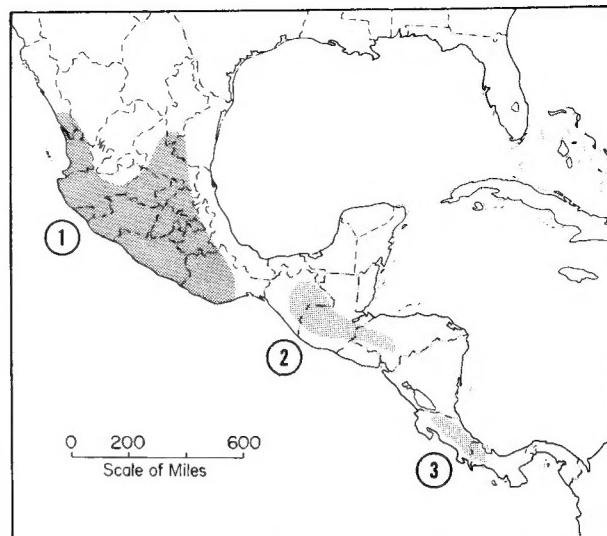


FIGURE 3. Distribution in Mexico and Central America of *Artibeus aztecus*. Subspecies are: 1, *A. a. aztecus*; 2, *A. a. minor*; and 3, *A. a. major*.

mer author considered specimens from El Salto, San Luis Potosí, as intergrades between *aztecus* and *toltecus*, but Davis (1958) later assigned these individuals to *toltecus*.

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Editors for this account were DANIEL F. WILLIAMS and SYDNEY ANDERSON. Managing editor was TIMOTHY E. LAWLOR.

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